

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A method for ~~[[the]] thermal treatment of treating~~ granular solids in a fluidized-bed reactor (1), ~~in which comprising feeding microwave radiation from a microwave source (2) is fed into the fluidized-bed reactor (1), characterized in that~~ , introducing from below a first gas or gas mixture ~~is introduced from below~~ through at least one ~~preferably central~~ gas supply tube ~~[[3]]~~ into a mixing chamber ~~[[7]]~~ of the fluidized-bed reactor, the at least one gas supply tube ~~[[3]]~~ being at least partly surrounded by a stationary annular fluidized bed ~~[[8]]~~ which is fluidized by supplying fluidizing gas, and ~~[[that]] supplying the microwave radiation is supplied to the mixing chamber [[7]] through the at least one [[same]] gas supply tube [[3]].~~

2. (Currently Amended) The method as claimed in claim 1, ~~characterized in that comprising adjusting [[the]] gas velocities of the first gas or gas mixture and of the fluidizing gas for the annular fluidized bed (8) are adjusted such that wherein the gas velocities have a Particle-Froude-Number[[s]] in the gas supply tube [[3] are]]~~ between 1 and 100, in the annular fluidized bed ~~[[8]]~~ between 0.02 and 2, and in the mixing chamber ~~[[7]]~~ between 0.3 and 30.

3. (Currently Amended) The method as claimed in claim 1 ~~or 2, characterized in that wherein~~ the Particle-Froude-Number in the gas supply tube ~~[[3]]~~ is between 1.15 and 20.

4. (Currently Amended) The method as claimed in ~~any of the preceding claims, characterized in that claim 1, wherein~~ the Particle-Froude-Number in the annular fluidized bed ~~[[8]]~~ is between 0.115 and 1.15.

5. (Currently Amended) The method as claimed in ~~any of the preceding claims, characterized in that claim 1, wherein~~ the Particle-Froude-Number in the mixing chamber ~~[[7]]~~ is between 0.37 and 3.7.

6. (Currently Amended) The method as claimed in ~~any of the preceding claims, characterized in that the~~ claim 1, comprising adjusting the solids in the reactor have a bed height of solids in the reactor (1) is adjusted such that the annular fluidized bed ~~[(8)]~~ extends beyond the upper orifice end of the gas supply tube ~~[(3)]~~ and that solids are constantly introduced into the first gas or gas mixture and entrained by the gas stream to the mixing chamber ~~[(7)]~~ located above the orifice region of the gas supply tube (3).

7. (Currently Amended) The method as claimed in ~~any of the preceding claims, characterized in that~~ claim 1, wherein the microwave radiation is introduced through a gas supply tube (3, 3a, 3b) constituting a wave guide (4, 4a, 4b) and/or through a wave guide (4a, 4b) arranged in the gas supply tube (3).

8. (Currently Amended) The method as claimed in ~~any of the preceding claims, characterized in that~~ claim 1, wherein the microwave radiation is introduced through a plurality of wave guides (4a, 4b), each wave guide (4a, 4b) being provided with a separate microwave source (2a, 2b).

9. (Currently Amended) The method as claimed in ~~any of the preceding claims, characterized in that~~ claim 7, wherein purge gas is passed through the wave guide (4, 4a, 4b).

10. (Currently Amended) The method as claimed in ~~any of the preceding claims, characterized in that~~ claim 1, wherein any of the ~~preceding claims, characterized in that~~ the used frequency for the microwave source (2) lies between 300 MHz and 30 GHz, ~~preferably between 400 MHz and 3 GHz, in particular at the ISM frequencies 435 MHz, 915 MHz and 2.45 GHz.~~

11. (Currently Amended) The method as claimed in ~~any of the preceding claims, characterized in that the~~ claim 7, wherein the wave guide having an adjustable cross-section and ~~[(the)]adjustable dimensions of the wave guide (4)~~ are adjusted to the used frequency of the microwave radiation.

12. (Currently Amended) The method as claimed in ~~any of the preceding claims,~~ ~~characterized in that the temperatures in~~ claim 1, wherein the stationary annular fluidized bed (8) ~~lie~~ has a temperature between 150°C and 1500°C.

13. (Currently Amended) The method as claimed in ~~any of the preceding claims,~~ ~~characterized in that~~ claim 1, wherein solids discharged from the reactor [(1)] and separated in a downstream separator [(14)] are at least partly recirculated to the annular fluidized bed [(8)] of the reactor.

14. (Currently Amended) The method as claimed in ~~any of the preceding claims,~~ ~~characterized in that~~ claim 1, wherein gas introduced through ~~[[the]]~~ a wave guide [(4)] is used for an additional fluidization of the stationary fluidized bed [(8)].

15. (Currently Amended) The method as claimed in ~~any of the preceding claims,~~ ~~characterized in that~~ claim 1, wherein the granular solids are fined-grained solids with a grain size of less than 1 mm and the fined-grained solids are supplied as starting material.

16. (Currently Amended) A plant for ~~[[the]]~~ thermal ~~treatment of~~ treating granular solids, ~~in particular for performing a~~ by the method as claimed in claim 1 ~~any of claims 1 to 15,~~ comprising a reactor (1) ~~constituting,~~ wherein the reactor has a fluidized-bed reactor and a microwave source (2), ~~characterized in that~~ and the reactor (1) includes comprises a gas supply system which is formed such that gas flowing through the gas supply system entrains solids from a stationary annular fluidized bed [(8)], which at least partly surrounds the gas supply system, into the mixing chamber [(7)], and that microwave radiation can be introduced by the gas supply system.

17. (Currently Amended) The plant as claimed in claim 16, ~~characterized in that~~ wherein the gas supply system includes a gas supply tube [(3)] extending upwards substantially vertically from the lower region of the reactor [(1)] into the mixing chamber [(7)] of the reactor [(1)], the gas supply tube (3) being surrounded by a chamber which at least partly extends around the gas supply tube (3) and in which the stationary annular fluidized bed (8) is formed.

18. (Currently Amended) The plant as claimed in claim 17, ~~characterized in that wherein~~ the gas supply tube ~~[(3)]~~ is arranged approximately centrally with reference to the cross-sectional area of the reactor ~~[(1)]~~.

19. (Currently Amended) The plant as claimed in ~~any of claims 16 to 18,~~ ~~characterized in that~~ claim 16, wherein the gas supply tube ~~[(3)]~~ constitutes a wave guide ~~[(4)]~~ for introducing the microwave radiation.

20. (Currently Amended) The plant as claimed in ~~any of claims 16 to 19,~~ ~~characterized in that~~ claim 16, wherein in the gas supply tube ~~[(3)]~~ at least one wave guide ~~(4a, 4b)~~ is arranged for introducing the microwave radiation.

21. (Currently Amended) The plant as claimed in ~~any of claims 16 to 20,~~ ~~characterized in that~~ claim 16, wherein a plurality of gas supply tubes ~~(3a, 3b)~~ and/or a plurality of wave guides ~~(4a, 4b)~~ are provided, a separate microwave source ~~(2a, 2b)~~ being connected to each wave guide ~~(4a, 4b)~~.

22. (Currently Amended) The plant as claimed in ~~any of claims 19 to 21,~~ ~~characterized in that a~~ claim 19, wherein the wave guide ~~[(4)]~~ has a rectangular or round cross-section.

23. (Currently Amended) The plant as claimed in ~~any of claims 19 to 22,~~ ~~characterized in that a~~ claim 19, wherein the wave guide ~~[(4)]~~ has a length of 0.1 m to 10 m.

24. (new) The method as claimed in claim 10, wherein the used frequency is between 400 MHz and 3 GHz.

25. (new) The method as claimed in claim 10, wherein the used frequency is at an Industrial, Scientific, and Medical (ISM) frequency of 435 MHz, 915 MHz, or 2.45 GHz.